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ABSTRACT

As part of a multiphase study on male and female student attitudes towards Air Force technical training and the relationship between those attitudes and student performance, the 121-item Technical Training Student Survey (TTSS) was administered to 12,666 technical training students. The attitudes of students from high attrition courses were compared to the attitudes of students from low attrition courses to identify those attitudes related to course attrition rate and to compare attitudes related to student performance at different levels of student attrition. Many similarities were found, but differences suggested the importance of motivational factors. Male and female attitudes towards the training experience were found to differ in several areas. While some differences referred to specific aspects of training, most appeared to be reflecting the differences in attitudes between a group with experience in a particular environment (men) versus those of a group entering a relatively new experience (women). The attitudes related to performance for men and women were found to be very similar with some indications that women were having greater difficulty with some aspects of the academic work. These findings and the application of this methodology to other subsets of the existing data base are discussed. The TTSS is appended. (Author/MH)

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AFHRL-TR-77-27(II)

AIR FORCE HUMAN RESOURCES LABORATORY

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DEVELOPMENT AND VALIDATION OF THE AIR FORCE TECHNICAL TRAINING STUDENT SURVEY:

ATTITUDINAL CORRELATES OF COURSE ATTRITION LEVEL AND STUDENT GENDER

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April 1979
Final Report for Period March 1973 – December 1978

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AIR FORCE SYSTEMS COMMAND
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This final report was submitted by Personnel Research Division, under project 7719, with HQ Air Force Human Resources Laboratory (AFSC), Brooks Air Force Base, Texas 78235. Dr. Jeffrey E. Kantor (PEM) was the Principal Investigator for the Laboratory.

This report has been reviewed by the Information Office (OI) and is releasable to the National Technical Information Service (NTIS). At NTIS, it will be available to the general public, including foreign nations.

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As part of a multiphase study on student attitudes towards Air Force technical training and the relationship between those attitudes and student performance, a data base was established consisting of attitudinal self-report data and course performance measures on 12,666 technical training students. The purpose of this study was to utilize that data base to compare the attitudes of two student subgroups. First, the attitudes of students from high attrition courses were compared to the attitudes of students from low attrition courses to identify those attitudes related to course attrition rate and to compare attitudes related to student performance at different levels of student attrition. A number of significant attitudinal differences were found relating to course attrition level. While some of these differences referred directly to academic issues, other differences appeared to reflect motivational factors. In

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comparing the attitudinal correlates of performance between students from high and low attrition courses, many similarities were found, but again, differences suggested the importance of motivational factors. Second, the attitudes of male and female students were compared to identify gender-specific attitudes and those attitudes related to performance for men and women. Male and female attitudes towards the training experience were found to differ in several areas. While some differences referred to specific aspects of training, most appeared to be reflecting the differences in attitudes between a group with experience in a particular environment (men) versus those of a group entering a relatively new experience (women). The attitudes related to performance for men and women were found to be very similar with some indications that women were having greater difficulty with some aspects of the academic work. These findings and the application of this methodology to other subsets of the existing data base are discussed.

PREFACE

This work was conducted at the request of Air Training Command (RPR 72-26) and accomplished under project 7719, Selection and Classification Technology; task 771902, Exploration of Methods for Increasing the Effectiveness of Personnel Programs.

Appreciation is expressed to the many people at Air Training Command and the Computational Sciences Division of the Air Force Human Resources Laboratory who gave valuable assistance throughout the course of this research. Their support and enthusiasm were essential for the successful completion of this project.

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DEVELOPMENT AND VALIDATION OF THE AIR FORCE TECHNICAL TRAINING STUDENT SURVEY: ATTITUDINAL CORRELATES OF COURSE ATTRITION LEVEL AND STUDENT GENDER

I. INTRODUCTION

At the request of the Air Training Command, the Personnel Research Division of the Air Force Human Resources Laboratory initiated a study of student attitudes toward Air Force technical training and of the relationship between those attitudes and performance/attrition in technical training. This research was divided into three phases: (a) the development and validation of an instrument sensitive to student attitudes and related to technical training performance, (b) a comparison of student attitudes from courses having different levels of student attrition, and (c) a comparison of attitudes from specific student subgroups of interest. The first phase, development and validation of the Technical Training Student Survey (TTSS), was completed in 1977 and reported in Kantor, Vitola, and Guinn (1977).

In the first phase, it was found that the TTSS had satisfactory psychometric properties and was capable of identifying differential attitudes specifically related to student performance. Based on this validation phase, it was concluded that the TTSS could form the basis for a methodology capable of identifying attitudes differentially related to many different criteria. The remaining two phases of this research, comparing attitudes related to differential course attrition rates and identification of attitudinal differences between student subgroups, were accomplished both to delineate specific differential attitudes of interest and to illustrate some of the potential applications of a methodology based on the TTSS.

In the course of the validation study, a data base was established consisting of attitudinal responses and technical training course performance measures on 12,666 technical training students. From this data base, it was possible to abstract and study various data subsets of interest. Attitudinal differences between groups could be identified, and the relationships between attitudes and course performance could be compared. In this study, two data subsets were extracted and evaluated. First, the attitudes of students from courses having relatively high attrition rates were compared to the attitudes of students from courses having relatively low attrition rates. A comparison of this type should be beneficial in determining whether attitudes remain constant regardless of the level of attrition.

The second data subset dichotomized the sample by student gender. Comparisons drawn between men and women are of interest for several reasons. While male/female differences have been, historically, an area of both popular and scientific inquiry, the current increase in numbers of women entering the Air Force increases the importance of identifying and assessing gender differences which might impact on personnel training and utilization. Also, in many technical training areas, particularly involving mechanics and electronics, men and women exhibit differential attrition rates unrelated to entering aptitude scores. Therefore, the objectives of this study were (a) to identify attitudinal differences between students from courses having high vs. low attrition rates, (b) to compare and contrast the relationships between attitudes and performance for students from courses having high vs. low attrition rates, (c) to identify attitudinal differences between male and female technical training students, and (d) to compare and contrast the relationships between attitudes and performance for male and female students.

II. METHOD

Subjects

A total of 12,666 nonprior-service enlisted accessions (10,980 men and 1,686 women) were administered the TTSS while attending one of 53 Air Force technical training courses conducted between September 1974 and August 1975. For comparative purposes, to study the issue of high vs. low attrition, this sample was first divided into students from courses having relatively high attrition (more than 8%) and

students from courses having relatively low attrition (less than or equal to 8%). These groups were then subdivided on the basis of technical training outcome to form four groups: (a) High Attrition-Graduates (5,340), (b) High Attrition-Eliminees (847), (c) Low Attrition-Graduates (6,083), and (d) Low Attrition-Eliminees (396). To study male/female differences, the sample was recombined, then divided by gender and training outcome to form four different groups: (a) Male-Graduates (9,993), (b) Male-Eliminees (987), (c) Female-Graduates (1,430), and (d) Female-Eliminees (256).

Survey Instrument

The TTSS contains 121 items designed to tap student attitudes about specific aspects of Air Force technical training. These measures reflect the student's expectations about training; motivation for training; perceptions of instructors, fellow students, and physical settings; degree of perceived stress in training; and the degree of personal satisfaction derived from the student's training and career choice. Approximate administration time for the TTSS is 30 minutes. A copy of the TTSS is presented in Appendix A. An example of the type of item and response format used is presented in Figure 1.

Survey Administration

The TTSS was administered under standardized conditions to students in the training setting. Sampling points were chosen to allow comparisons across all technical training courses, between technical training centers, and between courses having differing attrition rates. It is assumed that the response patterns obtained did accurately reflect the spectrum of attitudes present in the population of Air Force technical training students.

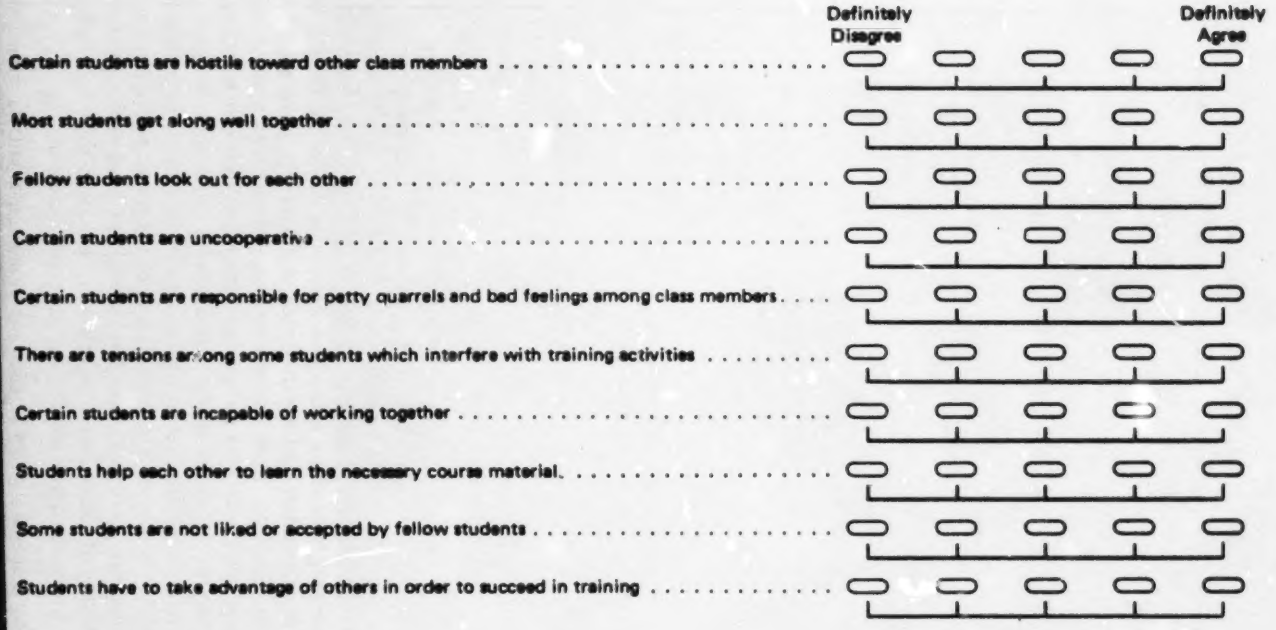
Statistical Analysis

To evaluate student attitudinal differences, a stepwise discriminant analysis approach was utilized. This technique provided both an identification of specific attitudinal differences and a relative importance weighting of those attitudes. Additionally, these analyses were conducted in a manner designed to insure high levels of confidence. Not more than 5% of the items identified as significant could have been included incorrectly ($\alpha \leq .05$ per discriminant analysis).

III. RESULTS AND DISCUSSION

Attitudinal Correlates of Course Attrition Level

To identify the attitudinal differences between students from courses having a low attrition rate (less than or equal to 8%) vs. a high attrition rate (greater than 8%), a discriminant analysis was accomplished across all students using an attrition level indicator as the dependent variable. From this analysis, 42 of the 121 TTSS items were found to be significantly ($p \leq .05$) related to attrition level differences. These 42 items accounted for 22.2% of the dependent variance ($r = .47$). Based upon the content of the item, its order of entry into the stepwise discriminant process, and its correlation with the attrition level indicator, the major attitudinal differences between students from low vs. high attrition courses were summarized and are presented in Figure 2 (a complete list of the 42 items and their individual correlations with the attrition level indicator are presented in Appendix B1). From these attitudinal differences, it would appear that students from high attrition courses were experiencing more difficulties with study guides, shift schedules, and study facilities outside the classroom than were students from low attrition courses. High attrition course students also reflected more of a concern that too much emphasis was placed on passing the course rather than actual learning. On the positive side, students from high attrition courses saw fewer problems with other students and were more satisfied with various physical aspects of the classroom (e.g., chairs, ventilation, workspace). Finally, students from low attrition courses saw more incentives for classroom performance (e.g., less menial duties, good civilian jobs after service, greater work freedom) and were more satisfied with the Air Force. In general, these attitudinal differences appear to reflect that, as might be


Definitely Disagree
Definitely Agree
Certain students are hostile toward other class members
Most students get along well together
Fellow students look out for each other
Certain students are uncooperative
Certain students are responsible for petty quarrels and bad feelings among class members
There are tensions among some students which interfere with training activities
Certain students are incapable of working together
Students help each other to learn the necessary course material.
Some students are not liked or accepted by fellow students
Students have to take advantage of others in order to succeed in training

Note. Instructions for Responding:

1. Below is a series of statements related to both your training and training environment.
2. Please darken the one *circle on each scale* that best expresses your feelings.

Figure 1. **An example of the type of item and response format used in the technical training student survey.**

Students from high attrition courses see less hostility and petty quarrels among fellow students

Students from high attrition courses think that study guides are difficult to understand

Students from low attrition courses see more "rewards" for performing well in school (e.g., less "Mickey Mouse" duties, good civilian jobs after service, greater freedom in accomplishing class work)

Students from high attrition courses think that some students would perform better on a different shift

Students from high attrition courses are more satisfied with classroom chairs, ventilation, and workspace

Students from high attrition courses are less satisfied with study facilities outside the classroom

Students from low attrition courses are more satisfied with the Air Force

Students from high attrition courses felt that too much emphasis was placed on passing the course rather than learning

Figure 2. **Major attitudinal differences between students from low vs. high attrition courses.**

expected, students from high attrition courses are experiencing more academic problems than are students from low attrition courses. However, the high attrition students are also perceiving fewer rewards for their classroom performance than are the low attrition students. An interaction between lack of perceived incentives and difficult academic work could produce an overall negative atmosphere capable of fostering higher attrition rates. Therefore, for high attrition courses it might be beneficial to explore means of providing highly visible short-term rewards for academic work early in training. This is supported by previous research (Pritchard, VonBergen, & DeLeo, 1974) where it was found that the right incentives can be useful in establishing and reinforcing appropriate academic behavior.

To differentiate between the attitudes of graduates and eliminees from low attrition courses, an analysis was accomplished among students from low attrition courses using training outcome (graduation/elimination) as the dependent variable. From this analysis, it was found that 20 of the 121 TTSS items were significantly related to training outcome ($r = .37$) and that these 20 items accounted for 14% of the dependent variance. The major attitudinal differences between graduates and eliminees from low attrition courses were summarized and are presented in Figure 3 (a complete list of the 20 items is provided in Appendix B2). Graduates from low attrition courses exhibited some more positive attitudes (e.g., effect of tech training, satisfaction with training and career field) but were not more satisfied with the Air Force than were eliminees. It would appear that attitudes about the Air Force in general do not accurately reflect an individual's performance in training. It may be that the negative attitudinal impact of elimination might be relatively confined to specific aspects of the training experience and not carried over to general feelings regarding the Air Force. Therefore, individuals being eliminated from one course still might have a good probability of succeeding in another course because their first failure experience does not appear to affect their feeling of commitment to the Air Force in general.

Although performing academically better than the eliminees, graduates from low attrition courses desired more off-duty study time, did not feel that supplementary study materials were as readily available as they should have been, and believed that some fellow students were hostile to others. Also, graduates were more motivated to avoid menial or make-work duties and to pursue educational growth and development. Eliminees reflected their performance difficulties by feeling more pressure for perfection and believing that course materials were more difficult than they should have been. Overall, the impression is

Graduates felt that tech training had a positive effect on their feelings about their career field

Eliminees felt more pressure for perfection

Avoiding "Mickey Mouse" duties was more important to graduates

Graduates more satisfied with technical training and career field but not more satisfied with the Air Force in general

Graduates do not feel off duty study time is sufficient

Graduates see some fellow students as hostile

Eliminees think course materials are more difficult than they should be

Increased educational growth and development more important to graduates

Graduates felt that supplementary study materials were not readily available

Figure 3. **Major attitudinal differences between graduates and eliminees in low attrition courses.**

that graduates had more positive attitudes, felt less stress, and were more motivated to study outside the classroom.

To differentiate between the attitudes of graduates and eliminees from high attrition courses, an analysis was accomplished using training outcome as the dependent variable but drawing subjects only from the high attrition courses. From this analysis, it was found that 26 of the 121 TTSS items were significantly related to training outcome ($r = .50$) and that these significant items accounted for 25% of the dependent variance. The major attitudinal differences between graduates and eliminees from high attrition courses were summarized and are presented in Figure 4 (a complete list of the items is provided in Appendix B3). From the high attrition courses, graduates again appeared to hold more positive attitudes regarding training and their career fields, but were not more satisfied with the Air Force than were eliminees. Similarly, as in the low attrition courses, eliminees felt more pressure for perfection, and graduates desired increased availability of training equipment. However, in the high attrition courses, graduates reported a better match between their assigned career field and their preferred field than did the eliminees. Also, graduates were more motivated by the idea of job security, while eliminees saw early completion of training, chance to

Graduates felt that tech training had a positive effect on their feelings about their career field

Graduates were more satisfied with tech training and career field but not more satisfied with the Air Force in general

Eliminees felt more pressure for perfection

Assigned career field more similar to preferred career field for graduates

Job security more important to graduates

Graduates did not think that training equipment was readily available for student practice

Eliminees saw school performance linked to completing training ahead of schedule, chance to participate in decisions, and more challenging assignments after graduation

Figure 4. **Major attitudinal differences between graduates and eliminees in high attrition courses.**

participate in decisions, and more challenging assignments after graduation as incentives for their classroom performance. It is interesting to note that within much of the training environment, the incentives important to the eliminees are not particularly realistic goals. These findings may reflect two underlying factors particularly relevant to attrition in high attrition courses: (a) the graduates, compared to the eliminees, appear to gain significantly more satisfaction from what they are doing and have a more favorable outlook on their career potential and (b) the eliminees appear to have somewhat less realistic expectations than do the graduates. In a personnel system as large as that of the Air Force, manning needs often supplant personal desires; therefore, after graduation job security is a much more likely training outcome than assignment of choice or increased participation in personnel decisions. If the eliminees do hold somewhat less realistic expectations and are assigned to career fields less to their preference than are the graduates, then the eliminees could be less prepared for the rigors of the actual training experience. Realization of these misconceptions could be demotivating and result in decreased effort in academics. Better job-person matching and increased information about realistic training outcomes might be of particular benefit for students entering high attrition courses.

The major attitudinal factors found related to training outcome for students from both low and high attrition courses are summarized and compared in Table 1. From a casual evaluation of this table, it would appear that considerable commonality exists between the differing attitudes of graduates and eliminees, regardless of course attrition rate. However, students from low attrition courses seem to reflect more academic concerns (e.g., off-duty study time, course materials, educational growth) while students from high attrition courses reflect more motivational concerns (similarity of the assigned to the preferred field, job security, payoffs for school performance). These findings seem to indicate that although academic difficulties are encountered in both high and low attrition courses, there is also more of a motivational component to attrition in higher attrition courses. Though beyond the scope of this study, it might be beneficial to tap student motivation prior to entry and during school to determine whether there are systematic differences in entering students or whether in-course factors differentially affect motivation. Future research in this area may prove particularly fruitful.

Table 1. **Major Attitudinal Factors Related to Graduation/Elimination for Students in Low and High Attrition Courses**

Attitudinal Factors	Rank Order of Importance	
	Low Attrition	High Attrition
Effect of training on feelings about career field	1	1
Pressure for perfection	2	3
Importance of avoiding "Mickey Mouse" duties	3	
Satisfaction with training, career field, and Air Force	4	2
Amount of off-duty study time	5	
Interaction with fellow students	6	
Difficulty of course materials	7	
Importance of educational growth and development	8	
Availability of study materials/equipment	9	6
Similarity of assigned and preferred career fields		4
Importance of job security		5
Relationship between school performance and early completion of training, participation in decision, and assignment after school		7

Attitudinal Correlates of Student Gender Differences

The first gender-related analysis was accomplished to identify attitudinal differences between male and female students. For this analysis, sex was the dependent variable and significant relationships were identified between the sex of the respondent and his or her responses on 33 of the 121 items from the TTSS. These 33 items accounted for 9.5% of the dependent variance (r = .31). The major attitudinal differences between men and women were summarized and are presented in descending order of importance in Figure 5 (a complete list of the 33 items and their correlations with the dependent variable is presented in Appendix B4).

Females desire more off duty study time
Females do not think classroom temperature is satisfactory
Males see more petty quarrels among fellow students
Males believe military bearing distracts from school performance
Females desire better dorm sleeping facilities
Females believe students look out for each other
Females do not think enough time is spent on difficult subjects
Females are more satisfied with the Air Force
Males think tech training has been more beneficial to their career

Figure 5. **Major attitudinal differences between males and females.**

From these attitudinal differences, a few general findings seem apparent. Women show more concern about academics (i.e., desire more off duty study time, desire more time be spent on difficult subject matter). This is possibly related to the fact that in this sample the female attrition rate from technical training schools was considerably higher than that for men (males = 8.98%; females = 15.23%). This may reflect a desire on the part of the women to perform up to standards even if additional time and effort are required. Additionally, women were found to be less satisfied with certain aspects of the physical environment (classroom temperature, dorm sleeping facilities) but had a more positive perception of their fellow students (fewer petty quarrels, more support). Finally, although women seemed happier with their military status (more satisfied with the Air Force, less bothered by military bearing), it was the men who felt that technical training had been a more beneficial experience. This last finding might be related to gender differences in reasons for enlistment. Previous research (Vitola, Mullins, Williams, & Michelson, 1974) has found that men were more likely to enlist for vocational skill training while women were more interested in travel and personal growth opportunities. Overall, it appears that the women evidenced more academic difficulty, more group cohesion, more satisfaction, but perhaps were less sure of what benefit they were getting out of training. These attitudes might be considered typical of those of a group entering into a new environment, and it is possible that as the numbers of women and the experiences in technical training increase, some of the male/female differences will be moderated.

To differentiate between the attitudes of male graduates and male eliminees, an analysis was accomplished using only the male subjects with graduation/elimination being the dependent variable. Significant relationships were identified between the dependent variable and responses on 22 of the 121 TTSS items accounting for 9.76% of the dependent variance (r = .31). (A complete list of these items is provided in Appendix B5). The major attitudinal differences between male graduates and eliminees are summarized in Figure 6.

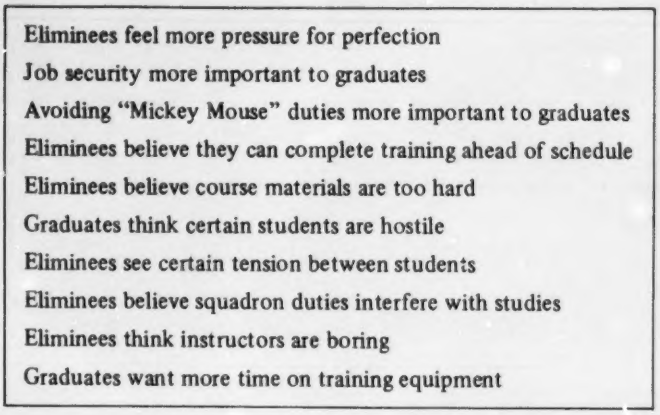

Eliminees feel more pressure for perfection
Job security more important to graduates
Avoiding "Mickey Mouse" duties more important to graduates
Eliminees believe they can complete training ahead of schedule
Eliminees believe course materials are too hard
Graduates think certain students are hostile
Eliminees see certain tension between students
Eliminees believe squadron duties interfere with studies
Eliminees think instructors are boring
Graduates want more time on training equipment

Figure 6. **Major attitudinal differences between male graduates/eliminees.**

From these attitudinal differences, it would appear that male eliminees felt more stress (pressure for perfection, difficulty with materials, interference with studies), that male graduates placed more importance on training rewards (job security, avoidance of duties), and that both male graduates and eliminees perceived some inter-student disharmony. Overall, it might be that the male eliminee evidences more susceptibility to pressure, less personal motivation, and is less attracted by the available training. This makes the eliminee easily discouraged and very difficult to keep on track and working when arduous effort is required.

To differentiate between the attitudes of female graduates and eliminees, an analysis was accomplished using the 1,687 female subjects again with graduation/elimination being the dependent variable. Significant relationships were identified on 12 of the 121 items, accounting for 11.52% of the dependent variance (r - .34). The major attitudinal differences between female graduates and eliminees are summarized in Figure 7. (A complete list of the 12 items is presented in Appendix B6.)

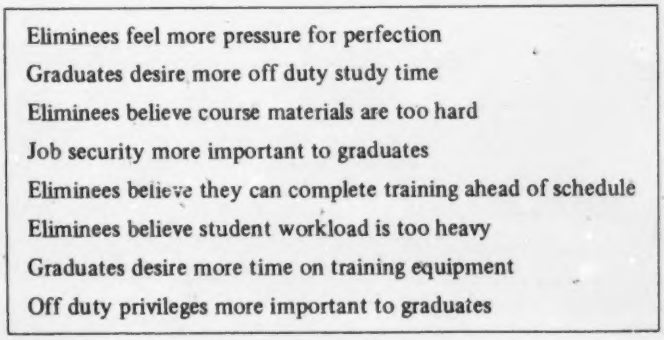

Eliminees feel more pressure for perfection
Graduates desire more off duty study time
Eliminees believe course materials are too hard
Job security more important to graduates
Eliminees believe they can complete training ahead of schedule
Eliminees believe student workload is too heavy
Graduates desire more time on training equipment
Off duty privileges more important to graduates

Figure 7. **Major attitudinal differences between female graduates/eliminees.**

From these attitudinal differences, it would appear that female eliminees also felt more stress (pressure for perfection, difficulty with course materials, student workload), that female graduates were more motivated (desire more study time, more time on equipment), and that female graduates placed more importance on system rewards (job security, off-duty privileges). Again, like the men, it would appear that

the female eliminees evidence more susceptibility to pressure, less drive towards the goal, and might be difficult to motivate since they appear less sensitive to system reinforcers.

The major attitudinal factors found related to graduation/elimination for men and women are summarized and compared in Table 2. It would appear evident that considerable overlap exists between the factors associated with technical training performance for men and women. Out of the first five more important factors, four are shared by men and women, leading to the conclusion that the similarities outweigh the differences between the sexes. However, the differences which exist appear to point to the conclusion that women have somewhat more academic difficulty than men. Since all students entering any particular training course are qualified for that course and have generally comparable aptitude scores, this finding is interesting because it suggests a difference in ability not currently being measured. Several areas of research were suggested by these findings. First, it should be determined if the relationships between aptitude test scores and performance in technical school are the same for both males and females. Second, course materials and structure should be investigated for sex bias which might negatively impact on female performance. Finally, the Air Force selection and classification system, developed on a primarily all-male force, should be evaluated to ensure that females are being properly managed with respect to the maximally effective classification of female personnel and their assignment to areas wherein they will have the highest probability of success. Research is currently underway in these areas.

Table 2. **Major Attitudinal Factors Related to Graduation/Elimination for Males and Females**

Attitudinal Factors	Rank Order of Importance	
	Males	Females
Pressure for perfection	1	1
Importance of job security	2	4
Importance of avoiding "Mickey Mouse" duties	3	
Chance of completing training ahead of schedule	4	5
Difficulty of course materials	5	3
Amount of off-duty study time		2
Relationships with fellow students	6	
Interference by squadron duties	7	
Instructor-interest level	8	
Amount of time on training equipment	9	7
Amount of student workload		6
Importance of off-duty study time		8

IV. CONCLUSIONS AND RECOMMENDATIONS

Attitudinal differences were found to exist between students from low and high attrition courses. While some of these differences referred directly to academic issues, other differences appeared to reflect motivational factors. In comparing the correlates of attrition from students in low and high attrition courses, much commonality was found, but again, differences suggested the importance of motivational and preference factors. These results support the conclusion that individual attitudes, motives, and preferences play an important role in student performance and should be considered before assignment to technical training. In particular, these findings support the utilization of a vocational interest inventory as a component of the Air Force enlisted classification and assignment process. Such an inventory has been developed, and its operational use should have a positive impact in the training environment.

The male and female attitudes regarding the Air Force technical training experience were found to differ significantly in several areas. Some of these differences may be dealt with directly, but most appear

to be reflecting the differences in attitudes between a group with experience in a particular environment (men) versus those of a group entering a new experience (women). It is possible that as the "newness" of having large numbers of women in technical training wears off, the similarities between male and female students will increase. The similarities between factors associated with graduation/elimination for men and women are substantial and appear to indicate similar problems in eliminees of both sexes. However, some differences were noted and appear to be indicative of females having more academic difficulties. In summary, certain attitudinal differences do exist between men and women in Air Force technical training, but there is substantial commonality indicating similar perceptions, concerns, and a similar relationship between attitude and performance.

The results of this study demonstrate the potential usefulness of the TTSS, as well as provide specific data for the courses included. It would appear that the TTSS can form the basis of a flexible methodology capable of identifying the attitudinal differences between many varied subject groups. As long as identification of the individual membership of a group is available, in conjunction with the TTSS data, then analysis via a discriminant process will provide a delineation of those attitudes which are held differentially by these groups. In this manner, in addition to studying subject-related differences, it is possible to uncover attitudinal differences associated with other dimensions of the training environment. For example, there might be relevant differences between career areas, training centers, or even training courses. It is also possible to collect data on a periodic basis and thereby evaluate trends in student attitudes related to policy/management changes or accession characteristics. Additionally, sampling across time could be useful in helping to uncover developing problem areas before they become serious obstacles to learning. In general, the TTSS can be used to monitor student attitudes in the training system as a whole and within the training environment along almost any dimension of interest. In this way, the TTSS can provide useful information to course and training managers on how students are perceiving the training experience, by giving the manager the view of training seen through the eyes of the student.

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APPENDIX A: TECHNICAL TRAINING STUDENT SURVEY

TECHNICAL TRAINING STUDENT SURVEY
PE 7403
AIR FORCE HUMAN RESOURCES LABORATORY

SSAN

DATE: Yr. 19- ; Day ; Mo. JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

GENERAL INSTRUCTIONS:

1. The items contained on this form are designed to measure student attitudes toward Air Force technical training.
2. The form is intended to give you the opportunity to help improve student training.
3. It is very important that your answers reflect your true feelings. This is not a test and you are not required to put your name on the form.
4. Please carefully follow the instructions at the beginning of each of the four main sections of this form.

SECTION I:

1. Below are statements describing rewards a student might receive if he performs well in technical training.
2. Beside each statement are two separate rating scales.

   On Scale 1 indicate how likely it is for you to receive the reward if you perform well in training.

   On Scale 2 indicate how important the reward is to you. Consider only its importance, not how likely or unlikely you are to receive the reward.
3. Notice that each scale has five circles. The words above the scales describe the meaning of the circles at the ends of each scale. The three circles in the middle of each scale represent feelings between those described at the scale ends. You might want to think of each scale as similar to a thermometer lying on its side.
4. Answer each item by darkening one circle on each scale to indicate how you feel about the statement. Read each statement carefully and take all the time you need.

	SCALE 1: IF YOU PERFORM WELL					SCALE 2: HOW IMPORTANT TO YOU				
	Very Unlikely				Very Likely	Not Important				Very Important
1. Increased job security after graduating from technical school										
2. Faster promotion										
3. Greater chance to participate in important decisions after graduating from technical school										
4. More challenging duty assignments after graduating from technical school										
5. More job responsibilities after graduating from technical school										
6. Greater chance of being skilled and competent in your career field										
7. Increased chance of getting a good civilian job after Air Force service										
8. Greater chance to be assigned to your base of choice										
9. Increased off-duty privileges (for example, three-day passes or no squadron detail)										
10. Greater freedom in deciding how to accomplish class work										
11. Increased chance of being admired and respected by fellow students										

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SECTION I:

	SCALE 1: IF YOU PERFORM WELL Very Unlikely — Very Likely	SCALE 2: HOW IMPORTANT TO YOU Not Important — Very Important
12. Instructors pay more attention to your ideas and suggestions		
13. Increased educational growth and development		
14. Greater chance to help other students learn the subject matter		
15. Greater chance to do better on tests and receive better grades		
16. Receive compliments, recognition and praise from instructors		
17. Fewer "Mickey Mouse" duties in the Squadron		
18. Fewer "Mickey Mouse" assignments in class		
19. Feeling of self-respect and sense of accomplishment		
20. Increased opportunity to use your abilities		
21. Receive more challenging class assignments		
22. Greater opportunity to study subject matter of special interest to you		
23. Increased chance of completing training ahead of schedule		
24. Provided with more spare time		
25. Instructors less critical of your work		
26. Increased chance of being an "Honor" graduate		

SECTION II:

1. Please use the scales below to describe your SSAN of main (lead) instructor.
2. Darken the one circle on each scale that best expresses your feelings.

27. Ineffective — Effective	34. Unprepared — Prepared	41. Considerate — Inconsiderate
28. Knowledgeable — Ignorant	35. Intelligent — Stupid	42. Hinders — Helps
29. Boring — Interesting	36. Inefficient — Efficient	43. Friendly — Unfriendly
30. Dependable — Undependable	37. Encourages — Discourages	44. Supportive — Hostile
31. Disorganized — Organized	38. Criticizes — Praises	45. Ridicules — Compliments
32. Unsure — Confident	39. Fair — Unfair	46. Cooperative — Uncooperative
33. Convincing — Unconvincing	40. Impatient — Patient	

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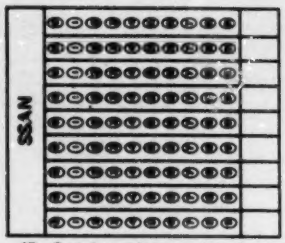
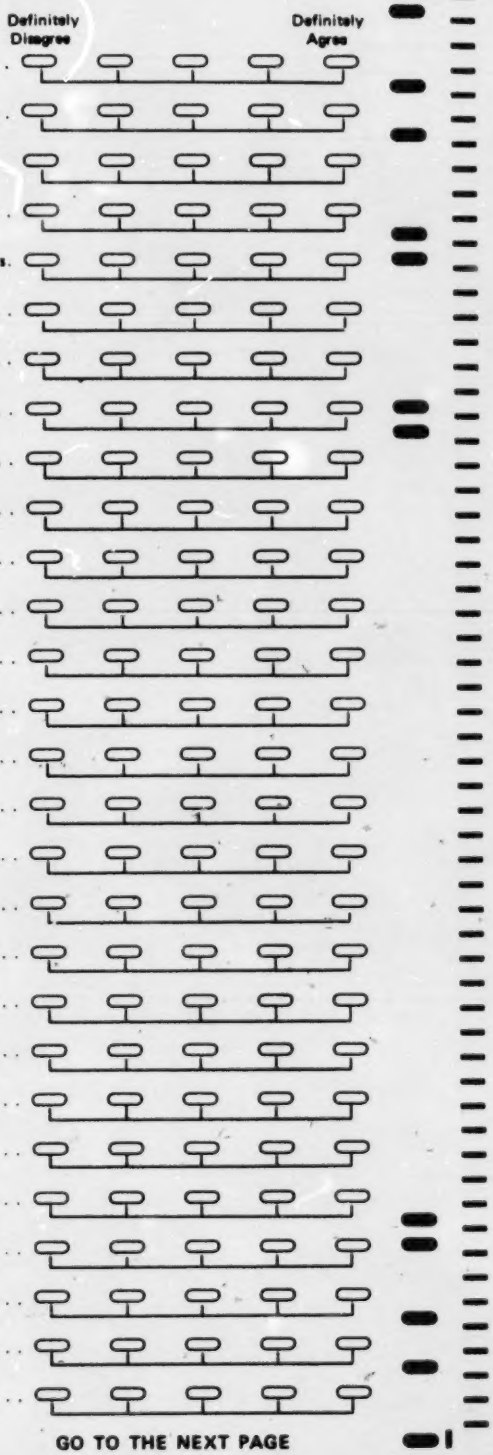


SECTION III:

1. Below are a series of statements related to both your training and training environment.
2. Please darken the one circle on each scale that best expresses your feelings.

	Definitely Disagree				Definitely Agree
47. Certain students are hostile toward other class members	○	○	○	○	○
48. Most students get along well together	○	○	○	○	○
49. Fellow students look out for each other	○	○	○	○	○
50. Certain students are uncooperative	○	○	○	○	○
51. Certain students are responsible for petty quarrels and bad feelings among class members	○	○	○	○	○
52. There are tensions among some students which interfere with training activities	○	○	○	○	○
53. Certain students are incapable of working together	○	○	○	○	○
54. Students help each other to learn the necessary course material	○	○	○	○	○
55. Some students are not liked or accepted by fellow students	○	○	○	○	○
56. Students have to take advantage of others in order to succeed in training	○	○	○	○	○
57. Students are given an equal opportunity to demonstrate their capabilities	○	○	○	○	○
58. Students are subject to strict discipline	○	○	○	○	○
59. Student training is too closely supervised	○	○	○	○	○
60. Students are encouraged to speak their minds even if it means disagreeing with the instructors	○	○	○	○	○
61. Students are encouraged to suggest improvements or solutions to training problems	○	○	○	○	○
62. Students are encouraged to participate in classroom discussions	○	○	○	○	○
63. Students are given the opportunity to participate in class	○	○	○	○	○
64. Student suggestions and recommendations are considered with fairness	○	○	○	○	○
65. Students are seldom able to use their own judgment	○	○	○	○	○
66. Students have no say about what happens to them	○	○	○	○	○
67. Students have little chance to influence the way the class is conducted	○	○	○	○	○
68. Students have the freedom to establish their own study schedules	○	○	○	○	○
69. Spare time in class may be spent as each student sees fit	○	○	○	○	○
70. Students are rarely given the chance to freely express their ideas in the classroom	○	○	○	○	○

SECTION III:



71. Students are seldom allowed to act independently
72. Pressure for perfection is unbearable
73. The military atmosphere in the classroom interferes with learning of the subject matter
74. Squadron duties interfere with study
75. In order to do well in training, students have to do things that are against their personal values.
76. Students don't know what is expected of them
77. There is confusion in the planning and organization of classroom activities
78. There is considerable conflict among training objectives
79. Performance standards are unreasonably high
80. Emphasis is placed on passing the course rather than learning subject matter
81. There is a good deal of disagreement on how this training should be conducted.
82. The student workload is too heavy
83. The quantity of class work interferes with how well it is done.
84. Emphasis on military bearing and appearance detract from student performance.
85. Training hours are too long.
86. Conflicts exist in the training requirements
87. Training equipment (including trainers) is adequate.
88. Training equipment (including trainers) is readily available for student practice.
89. Time allowed on training equipment (including trainers) is sufficient.
90. Training evaluation or testing is an accurate indication of student performance.
91. Study guides are difficult to understand
92. Excessive attention is given to unimportant details
93. Course materials are so poor that they contribute little to learning.
94. Course materials are not closely related to the course objectives
95. Course materials are more difficult than they should be
96. My progress in class is not what it should be due to the poor quality of training or course materials
97. Classroom temperature is satisfactory.
98. Dormitory sleeping facilities are adequate

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SSAN

SECTION III:

	Definitely Disagree				Definitely Agree
99. Classroom lighting is adequate	○	○	○	○	○
100. Classroom chairs are comfortable	○	○	○	○	○
101. Classroom seating arrangement is satisfactory	○	○	○	○	○
102. Length of class breaks is about right	○	○	○	○	○
103. Number of class breaks is sufficient	○	○	○	○	○
104. Study facilities outside the classroom are adequate	○	○	○	○	○
105. Classroom ventilation is about right	○	○	○	○	○
106. Time allowed for testing is sufficient	○	○	○	○	○
107. Classroom noise control is effective	○	○	○	○	○
108. Classroom work space is sufficient (desk or table top area)	○	○	○	○	○
109. Supplementary study materials (manuals, regulations, technical orders, etc.) are readily available for student use	○	○	○	○	○
110. Base recreation facilities are adequate	○	○	○	○	○
111. Off duty study time is sufficient	○	○	○	○	○
112. Time allowed for review of tests is adequate	○	○	○	○	○
113. Enough training time is spent on difficult and important subject matter	○	○	○	○	○
114. Some students would perform better on a different shift	○	○	○	○	○

SECTION IV:

1. Below are statements about your satisfaction with your training and career field.
2. Please darken the circle that best expresses your feelings about the statement in the same way you have in the other sections of this form.

	Completely Dissatisfied				Completely Satisfied
115. How do you feel about your technical training?	○	○	○	○	○
116. How do you feel about your assigned career field?	○	○	○	○	○
117. How do you feel about the Air Force?	○	○	○	○	○

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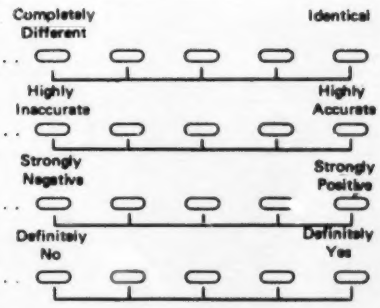
SECTION IV:


Completely Different
Identical
118. How similar is your assigned career field to your preferred career field?
Highly Inaccurate
Highly Accurate
119. How accurate was the information you received about your career field before entering technical training?
Strongly Negative
Strongly Positive
120. What effect has technical training had on your feelings about your career field?
Definitely No
Definitely Yes
121. If you have the chance, will you change to another career field?

REMARKS:

APPENDIX B: CORRELATION OF TTSS ITEMS TO COURSE ATTRITION LEVEL, GRADUATION/ELIMINATION OF STUDENTS, AND SEX OF RESPONDENT

Appendix B1

TTSS items significantly related to course attrition level coded: under 8% = 1, over 8% = 0. Item options coded as per Appendix A.

Item #	Correlation	Item #	Correlation
47	.188	103	.077
91	−.177	54	−.057
17 (Scale 1)	.158	11 (Scale 2)	.102
114	−.130	12 (Scale 1)	.013
106	.152	87	.077
7 (Scale 1)	−.073	121	.022
100	−.085	37	−.085
104	.129	35	.015
105	−.072	32	.066
117	.114	112	.020
51	.168	2 (Scale 1)	.076
108	−.067	74	−.079
80	−.114	75	.047
85	.020	119	.054
23 (Scale 1)	−.053	1 (Scale 1)	−.004
23 (Scale 2)	.059	9 (Scale 2)	.059
70	.018	7 (Scale 2)	−.069
64	.098	26 (Scale 2)	.088
10 (Scale 1)	.110	26 (Scale 1)	−.034
17 (Scale 2)	−.001	65	.008
18	.074	84	−.073

Appendix B2

TTSS items significantly related to graduation/elimination of students from low attrition courses; coding: graduates = 0, eliminees = 1.

Item #	Correlation
120	−.227
72	.155
17	−.107
117	.012
115	−.203
121	.181
111	.025
47	−.064
95	.122
22 (Scale 1)	.003
13 (Scale 2)	−.097
109	.021
65	.097
116	−.207
7 (Scale 1)	−.009
110	.030
80	.104
106	−.091
9 (Scale 2)	−.073
48	.025

Appendix B3.

TTSS items significantly related to graduation/elimination of students from high attrition courses; coding: graduates = 0, eliminees = 1.

Item #	Correlation	Item #	Correlation
120	−.317	25 (Scale 2)	.064
115	−.308	52	.098
117	.034	47	−.017
72	.212	40	−.096
118	−.253	107	.005
88	.080	2 (Scale 1)	.065
3 (Scale 1)	.054	53	.064
1 (Scale 2)	−.147		
104	.047		
116	−.314		
4 (Scale 1)	.048		
23	.104		
110	.049		
90	.035		
84	−.021		
79	.169		
7 (Scale 1)	−.021		
121	.271		
9	−.022		

Appendix B4

TTSS items significantly related to sex of respondent; coding: males = 1, females = 2. Item options coded as per Appendix A.

Item #	Correlation	Item #	Correlation
111	−.117	118	−.054
97	−.111	75	−.034
51	−.075	82	.064
84	−.049	104	−.079
98	−.104	66	−.025
49	.059	4 (Scale 2)	−.035
113	−.095	119	−.005
117	.038	112	−.090
120	−.063	25 (Scale 1)	.018
109	.007	54	.050
2 (Scale 2)	−.054	59	−.036
19 (Scale 1)	.029	62	−.030
56	−.058		
115	−.078		
38	.025		
29	−.054		
88	.023		
110	−.069		
8 (Scale 1)	.033		
69	−.054		

Note. Items are listed in order of entry into the stepwise discriminate analysis.

Appendix B5

TTSS items significantly related to graduation/elimination of male students; coding: graduates = 0, eliminees = 1.

Item #	Correlation
72	.182
1 (Scale 2)	−.124
17 (Scale 2)	−.081
23 (Scale 1)	.074
95	.128
47	−.058
52	.061
74	−.020
29	−.091
88	.046
80	.099
110	.031
12 (Scale 2)	−.003
79	.139
13 (Scale 2)	−.082
51	−.032
70	.097
3 (Scale 1)	.019
82	.109
89	.041
69	−.035
84	.031

Note. Items are listed in order of entry into the stepwise discriminate analysis.

Appendix B6

TTSS items significantly related to graduation/elimination of female students coding: graduates = 0, eliminees = 1.

Item #	Correlation
72	.209
111	.086
95	.154
1 (Scale 2)	−.117
23 (Scale 1)	.121
82	.142
89	.049
9 (Scale 2)	−.056
80	.134
84	.004
62	.009
33	.117

Note. Items are listed in order of entry into the stepwise discriminate analysis.

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